



GB04/4084



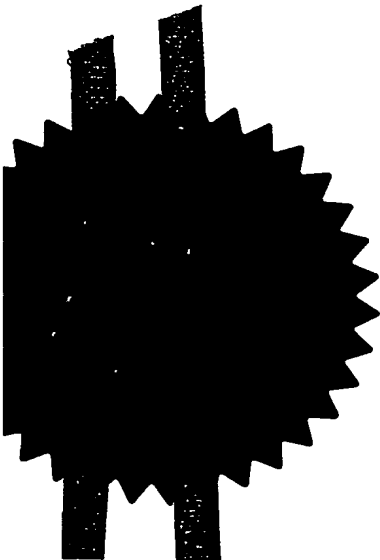
**The Patent Office
Concept House
Cardiff Road
Newport
South Wales
NP10 8QQ**

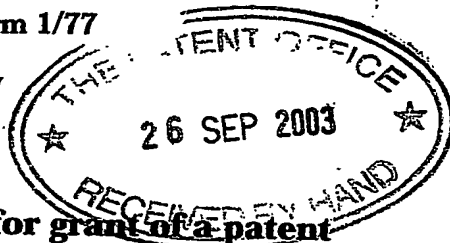
10 8QQ
REC'D 29 NOV 2004
WFO POT

Re-registration under the Companies Act does not constitute a new legal entity but merely subjects the company to certain additional company law rules.

Andrew

Dated 15 November 2004





The
Patent
Office

29SEP03 08:03:76-5/000180
P01/7700 01 00-0322617.2
1/77

Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

26 SEP 2003

The Patent Office

Cardiff Road
Newport
South Wales
NP9 1RH

1. Your reference	NG/21973GB		
2. Patent application number <i>(The Patent Office will fill in this part)</i>	0322617.2		
3. Full name, address and postcode of the or of each applicant <i>(underline all surnames)</i>	HELLERMANNTYTON DATA LIMITED 43-45 Salthouse Road Cornwell Business Park Brackmills Northampton NN4 7EX		
Patents ADP number <i>(if you know it)</i>			
If the applicant is a corporate body, give the country/state of its incorporation	GB		
4. Title of the invention	08603300001 Structured Cabling System and Patching Method		
5. Name of your agent <i>(if you have one)</i>	A A THORNTON & CO		
"Address for service" in the United Kingdom to which all correspondence should be sent <i>(including the postcode)</i>	235 HIGH HOLBORN LONDON WC1V 7LE		
Patents ADP number <i>(if you know it)</i>	75001 ✓		
6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and <i>(if you know it)</i> the or each application number	Country	Priority application number <i>(if you know it)</i>	Date of filing <i>(day / month / year)</i>
7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application	Number of earlier application	Date of filing <i>(day / month / year)</i>	
8. Is a statement of inventorship and of right to grant of a patent required in support of this request? <i>(Answer 'Yes' if:</i> a) <i>any applicant named in part 3 is not an inventor, or</i> b) <i>there is an inventor who is not named as an applicant, or</i> c) <i>any named applicant is a corporate body.</i> <i>See note (d))</i>	YES		

Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form

Description 4

Claim(s) -

Abstract -

Drawing(s) 1 + 14

10. If you are also filing any of the following, state how many against each item.

Priority documents -

Translations of priority documents -

Statement of inventorship and right to grant of a patent (Patents Form 7/77) -

Request for preliminary examination and search (Patents Form 9/77) -

Request for substantive examination (Patents Form 10/77) -

Any other documents (please specify) -

11.

I/We request the grant of a patent on the basis of this application.

Signature

Date

25/09/03

12. Name and daytime telephone number of person to contact in the United Kingdom

NIGEL GOODENOUGH - 01604 638242

Warning

After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

Notes

- If you need help to fill in this form or you have any questions, please contact the Patent Office on 0645 500505.
- Write your answers in capital letters using black ink or you may type them.
- If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s). Any continuation sheet should be attached to this form.
- If you have answered 'Yes' Patents Form 7/77 will need to be filed.
- Once you have filled in the form you must remember to sign and date it.
- For details of the fee and ways to pay please contact the Patent Office.

STRUCTURED CABLING SYSTEM AND PATCHING METHOD

This invention relates to a structured cabling system and to a method of patching a structured cabling system.

Structured cabling systems enjoy extremely wide use for the purposes of providing data and voice services cabling within a commercial environment. Typically, a structured cabling installation comprises a plurality of rack mounted patch panels. Some of these patch panels will have cables connected to the individual jacks thereof leading to remote jacks at various locations around a building. Others of the patch panel will be connected to other fixed installations, for example a telephone switch system. Once all the fixed cabling has been installed patch leads are used to connect the jacks of respective patch panels to establish connections therebetween.

Heretofore, the patching process has been slow and even if carried out with care by skilled staff has been prone to error. In a large installation with many patch panels it can be difficult to see exactly which jack needs to be connected to which other jack. Further, the patching information (that is the instructions as to which jack is to be connected to which other jack) have to be read by the operator either from a hard copy print or a computer as he makes each connection. This is time consuming and prone to error.

We have now devised a new structured cabling arrangement and associated patching method which substantially eliminates the possibility of error and greatly speeds up the patching process. The method of the present invention is applicable both to patching of new installations and to the re-patching of existing installations, for example as a result of relocation of different departments within an office building.

In accordance with the first aspect of the present invention there is provided a structured cabling system comprising a plurality of patch panels each having a plurality of jacks; an indicator device associated with each jack, each indicator device being operable by an applied electrical signal to provide a visual indication of its associated jack; and sensor means associated with each jack to provide an electrical indication of the presence or absence of a plug connected to the jack.

In use of the present system, details of the required patching are set up on a central processing unit, for example a laptop computer or a server, and the central processing unit guides the installer in his patching activities. Typically, when the system is initiated to commence patching it will identify the first jack to which a patch lead is to be connected and will activate the indicator associated with that jack to provide a visual indication of the jack in question. The indicator can conveniently be a light source, for example a light emitting diode. Upon seeing the light the operator will insert the plug at one end of the patch lead into the identified socket. The insertion of the plug will be identified by the central processing unit which will then deactivate the indicator associated with the first jack socket and activate an indicator associated with the jack to which the other end of the first patch lead is to be connected. Insertion of the jack at the other end of the patch lead will be detected by the central processing unit.

In a particularly preferred embodiment of the invention, the patch lead will include a continuity conductor so that correct patching can be validated by establishing a current path from the first jack to the second jack via the patch lead. This validation can conveniently be carried out by the central processing unit. Once the first patch has been completed in this manner the central processing unit will illuminate another jack and the operator will plug the first end of a second patch lead into the indicated jack. The process is repeated until the patching is complete.

It will be appreciated that the above described system means that patching can be carried out rapidly and by unskilled staff. The possibility for wrong patching is, in effect, eliminated because the system will not move on to the next patching operation until the last patching operation has been satisfactorily completed and validated.

In a particularly preferred embodiment of the invention the means for indicating the presence or absence of a jack comprises the establishment, by a contact on the plug, of a connection between two contacts provided associated with the jack. The contacts may, for example, be in the form of a split can which surrounds the jack. The two parts of the can are connected to an appropriate detector circuit so that when the two parts of the can are electrically connected by the plug an electrical signal indicating the presence of the jack is provided.

In a particularly preferred embodiment of the invention means are provided for creating a record of the insertion and/or removal of a plug from a jack. The record may, for example, be established on the computer which carries the patching data. Typically, when a plug is inserted into an indicated jack, the fact of correct insertion will be noted on a database. Similarly, when the other end of a patch cord is inserted into an indicated jack, a record of this insertion will be created. If a continuity check is provided within the system, the results of the continuity check will likewise be recorded on the database. Preferably, means are provided for validating the records maintained by the database relative to the original patching instructions to provide confirmation that the patching has been correctly carried out.

The system preferably may also be used to facilitate re-patching. In this mode, if a modified patching arrangement is to be established a first jack will be indicated to show which plug should be removed. A second jack can then be indicated to show the new location of that plug. Preferably, a database record and validation system for the re-patching will be established.

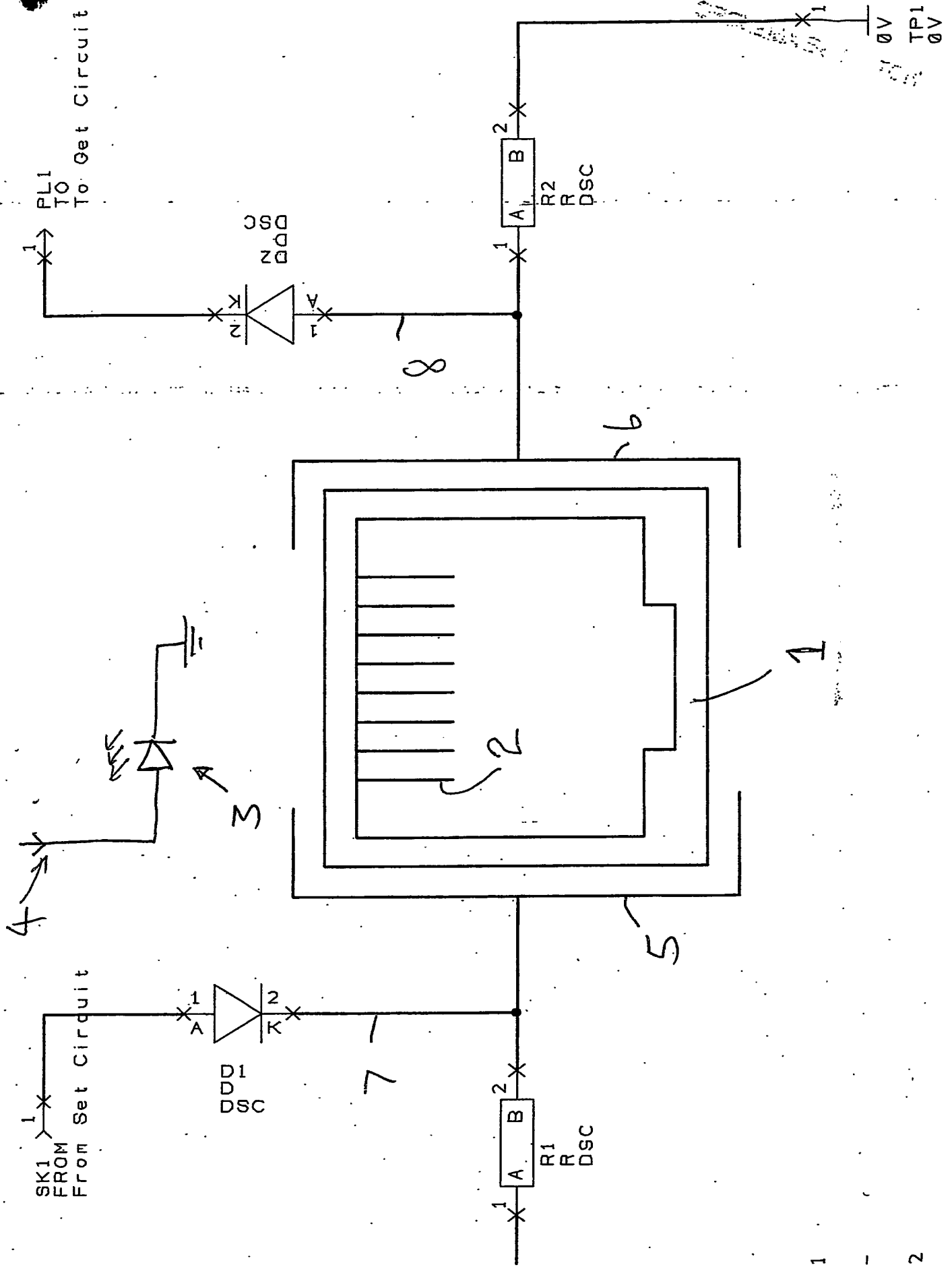
The invention will be better understood from the following description of a preferred embodiment thereof, given by way of example only, reference being had to the accompanying drawing which schematically illustrates a single jack of a structured cabling system.

The drawing illustrates schematically a single jack of a structured cabling system. It will be appreciated that, in practice, many identical jacks will be present in such a system. For simplicity, all jacks of the system should preferably be in the form of the single jack illustrated in the drawing.

The jack comprises a conventional body 1 and contacts 2 in accordance with the RJ45 protocol. Adjacent the jack is provided an LED 3 which can be illuminated in response to a signal 4 provided by a central processing unit. The LED 3 is immediately adjacent the jack 1 so that when the LED is illuminated it identifies uniquely the jack to which it is adjacent.

The jack 1 is provided with two partial shielding cans 5, 6 which, when no plug is present in the jack, are electrically isolated from each other. The two separate parts 5, 6 are connected by suitable cabling 7, 8 to a central processing unit.

Patching of an installation comprising a multiplicity of the jacks shown in the drawing is accomplished as outlined above.



PCT/GB2004/004084



This Page is Inserted by IFW Indexing and Scanning Operations and is not part of the Official Record.

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☒ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☒ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.